

CLAIMS

1. An active matrix electroluminescent (EL) display device comprising
5 a matrix array of electroluminescent display elements each of which has an
associated switching circuit for controlling the current through the display
element in accordance with an applied drive signal, wherein the switching circuit
comprises:

10 a drive transistor and a cascode transistor in series with an associated EL
display element, the drive transistor being for driving a current through the
associated EL display element;

15 a storage capacitor connected between a power supply line and the gate
of the drive transistor, for storing a gate voltage for the drive transistor;

20 a first switch for allowing or preventing the drive current to flow through
the EL display element,

25 wherein the switching circuit is operable in two modes, a first mode in
which an input current is sampled by the drive transistor and the first switch is
open, and a second mode in which the drive transistor drives a current
corresponding to the input current through the EL display element, and the first
switch is closed.

2. A device as claimed in claim 1, further comprising a second switch
between the gate and drain of the drive transistor.

25 3. A device as claimed in claim 2, wherein the second switch
comprises an n-channel transistor and a p-channel transistor in parallel.

4. A device as claimed in any preceding claim, further comprising a
third switch between the gate and drain of the cascode transistor.

5. A device as claimed in any preceding claim, further comprising a second storage capacitor connected between the gate of the cascode transistor and the power supply line.

5 6. A device as claimed in any preceding claim, further comprising a fourth switch between the drain of the cascode transistor and a current input to the switching circuit.

10 7. A device as claimed in any preceding claim, wherein the first switch is connected between the cascode transistor and the associated display element.

15 8. A device as claimed in any one of claims 1 to 6, wherein the first switch is connected between the associated display element and a second power supply line, which is common to all display elements of the device.

20 9. A device as claimed in any preceding claim, wherein the display elements are arranged in rows and columns, and said switch or switches of the switching circuit for a row of display elements are connected to a respective, common, row address conductor via which a selection signal for operating the switches in that row is supplied, and each row address conductor is arranged to receive a selection signal in turn, whereby the rows of display elements are addressed one at a time in sequence.

25 10. A device as claimed in claim 9, wherein the drive signals for the display elements in a column are supplied via a respective column address conductor common to the display elements in the column, the input current being supplied to or drained from the column address conductor.

30 11. A device according to any preceding claim, wherein the drive transistor, the cascode transistor and the switch or switches comprise thin film transistors carried on an insulating substrate.